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DIVISION OF
OIL, GAS & MINING

February 28, 1989

Lowell Braxton, Administrator
Mineral Resource Development &
Reclamation Program
Division of Oil, Gas & Mining
355 West North Temple
3 Triad Center, Suite 350
Salt Lake City, Utah 84180-1203

RE: Moab Salt May 18, 1988 Response to
DOGM Comments, Mine and Reclamation
Plan.

Dear Lowell:

We have completed a review of Moab Salt's response to your comments on their Mine and Reclamation Plan, referenced above. Pursuant to our meeting of February 1, 1989, we provide the following comments for your consideration in approval of the Plan.

Attachment A

1. Response to DOGM Comment No. 5: Solid Waste Landfill

- a) U.S. EPA is about to issue final rules for industrial and municipal landfills in December, 1989. A summary of the expected requirements is attached for your information. The new regulations focus on municipal landfills. However, consultation with the Bureau of Solid and Hazardous Waste (BSHW) has indicated that they would apply most of the municipal landfill requirements to an industrial landfill, and that eventually similar requirements are expected to be applied to the industrial landfills by EPA.

What this means to Moab Salt is that any landfill used as a part of the reclamation process would require double liners, clay/synthetic or synthetic/synthetic, at a minimum. Therefore, the use of one of the existing evaporation ponds does not appear feasible without a significant retrofitting.

- b) Current BSHW requirements for landfills dictate that all fluids be removed from the impoundment before deposition of any solid-waste. An existing evaporation pond would need to be dried out or evacuated of fluids before conversion to a solid-waste landfill.

- c) How will Moab Salt ascertain that the evaporation pond selected for conversion to a solid-waste landfill, has not experienced leakage; thereby requiring desalination of the soils and recovery of salt contaminants?

These issues could be avoided thru the construction of a new landfill at the time of mine abandonment.

Attachment B

1. Response to Comment No. 2 - Soil Reclamation

- a) The response to how much salt will be left below the three foot leaching level is incomplete. No information has been provided on the bedrock salt content.
- b) Salt in the subsoil and bedrock is mobile, due to its extremely high solubility, and its location in the unsaturated zone above the water table.
- c) Moab Salt is responsible for all the salt it has discharged to the subsurface during the life of the operation and must ensure that it does not migrate to the Colorado River.
- d) The claim that local ground water seeps are naturally saline (NaCl) is unverified in that the ground water analyses provided are incomplete. Also, this claim is contradictory with information submitted earlier to the Bureau describing the same study of the groundwater seeps. A May 12, 1970 Texasgulf letter, attached, indicates that salt solids collected at the seeps consisted primarily of trona. This suggests that the background groundwater quality of the seeps also included bicarbonates and possibly carbonates.
- e) The statement that flow at the seeps will diminish after reclamation due to the lower levels of recharge from the evaporation ponds is accurate. However, recharge from precipitation will continue to supply the seeps. All salts left in the subsurface by Moab Salt will continue to be mobilized by the natural recharge and transported by subsurface flows. This contaminated groundwater will be discharged by seeps and underflows to the Colorado River.
- f) It appears that Moab Salt has two options regarding the removal of salts discharged to subsoils and bedrock:
 - 1) Mobilize the salts thru irrigation of the areas to be reclaimed, and recover the contaminated ground water for return to their process circuit. In this case ground water recovery would continue until background water quality levels were achieved, or,
 - 2) Demonstrate that local conditions and mine reclamation design produce a situation where the resultant discharge of contaminated ground water to the Colorado River, from the entire mine, falls within the guidelines of the Colorado River Salinity Forum.

2. Response to Comment No. 4 - Plant Site Leachates Lost to Ground Water

- a) The lack of salt seeps at the margin of the terrace upon which the plant site is located, may also be explained by the presence of permeable bedrock allowing groundwater to travel a subsurface path to the river. No evidence has been provided to rule out this possibility.
- b) What is the ultimate fate of the salt lost to soils in the vicinity of the plant? Does or will this salt leave the plant site? If so, what measures will be taken to prevent these losses of salt to the river or the environment?
- c) Instead of insitu leaching of contaminated plant-site soils as originally proposed, might heap leaching of the soils be considered? This technique may be more environmentally effective if salt contamination has not permeated bedrock materials.
- d) Oil and chemical reagent contaminated soils in the plant-site area must be tested by a State Health Laboratory certified laboratory to determine the presence of any hazardous waste, as defined in 40 CFR 261 or by the Utah Hazardous Waste Management Rules. Only soils found to be non-hazardous may be disposed in the reclamation landfill. Disposal of hazardous materials must be consistent with the requirements of the Utah Hazardous Waste Management Rules or any other applicable state and federal requirements at the time of reclamation.

If you have any questions or comments please call Loren Morton or Steve McNeal at 538-6146. Thank you for your cooperation on this project.

Sincerely,



Don A. Ostler, Director
Bureau of Water Pollution Control

LBM:kc

Encl.

cc: Rick York, Moab Salt
Dave Arriotti, S.E. Dist. Health Dept.

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